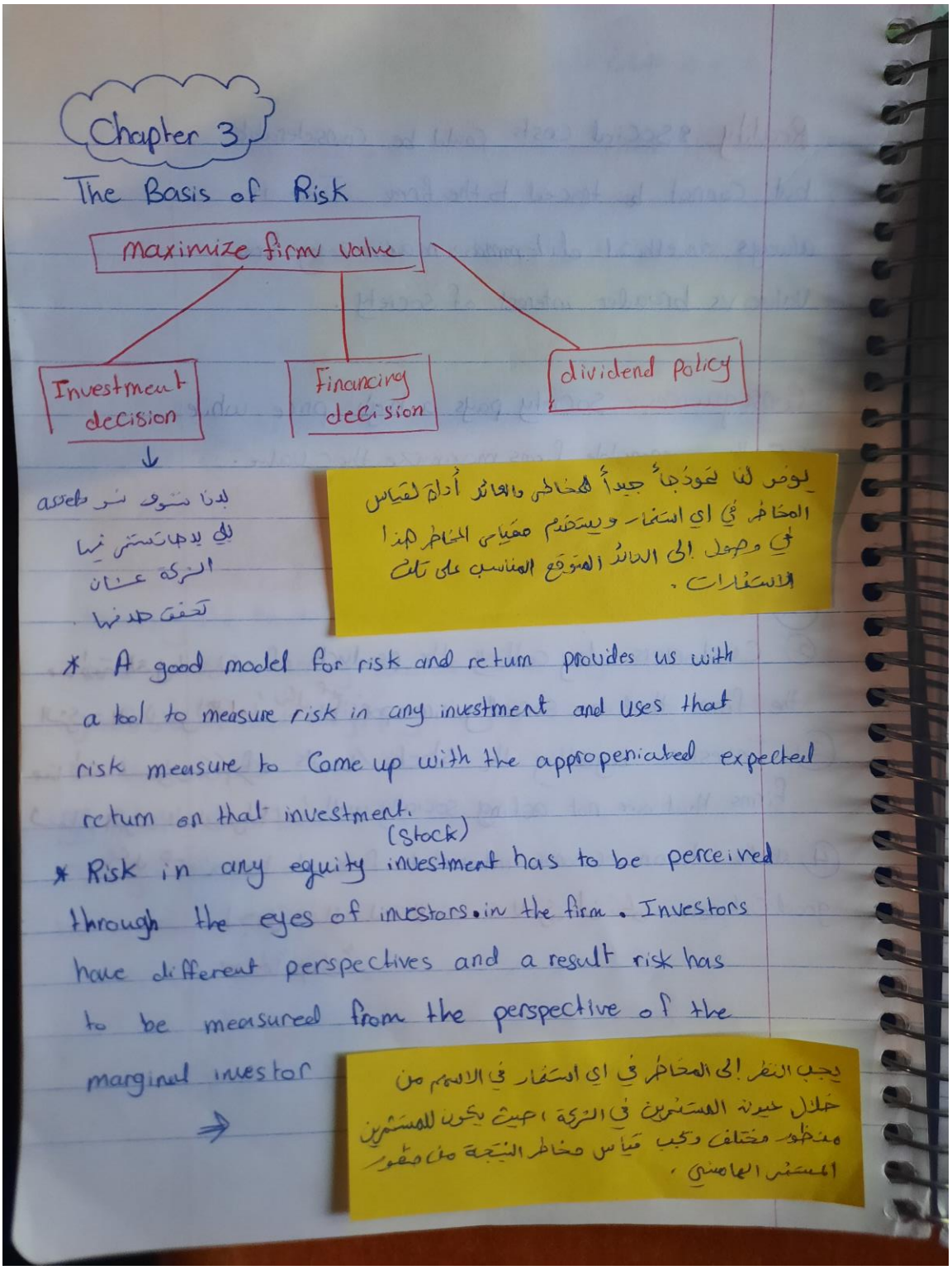
ASIL SHAAR (CORPORATE FINANCE(FINN3300))

CHAPTER 3



المستثمر الهامشي ← المستثمر الذي من المرجح ان يتم العثور عليه لتداول في الاسهم في اي وقت محدد .

* marginal investor → the investor who is most likely to be found trading on the stock at any given point of time.

Characterestics of a good risk and return model خصائص نموذج المخاطر والعائد الجيد

(1) It should come up with a risk measure that applies to all assets يجب ان يأتي بمقياس مخاطر ينطبق على جميع الاصول

CAPM

$$E(r) = R_F + b(E(r_m) - R_F)$$

Risk = Diversifiable risk (firm-specific risk) + nondiversifiable risk (market risk)

(2) It should describe what types of risk that are rewarded and what are not يجب ان يصف انواع المخاطر التي يتم مكافأتها وما لا يتم مكافأتها

(3) It should come up with standardised risk measure wich enables the investor to draw conclusion about the asset whether its risk is above average or below average.

(4) It should translate the measure of risk into rate of return that the investor should demand as compensation for bearing the risk

3- يجب ان تأتي بمقياس معياري للمخاطر يمكن المستثمرين استخدامه لاستنتاج حول ما اذا كانت مخاطرة الاصل اعلى من المتوسط او اقل من المتوسط

4- يجب ان تترجم مقياس المخاطرة إلى معدل عائد يجب على المستثمر ان يطلبه باعتباره خصم تعويض يتحمل المخاطرة .

5) It should ~~with~~ work well at explaining past returns and in predicting future expected returns.

يجب أن تعمل بشكل جيد حتى في تفسير العائد السابق في ممارسة العوائد المتوقعة

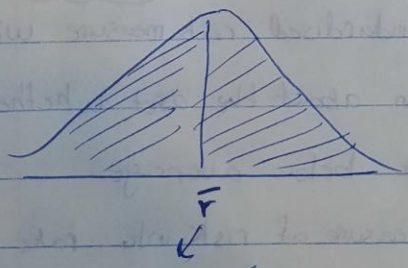
Equity risk and expected return

* prices are observed in the market
* Returns Cannot be observed.

$$r = \frac{P_t - P_{t-1} + CF}{P_{t-1}}$$

- r: rate of return
- P_t: price at the end at the point
- P_{t-1}: price at the beging of the period.

* Returns are normal distributed



expected return ← mean = $\frac{\Sigma r}{n}$

⇒

Any statistical distribution has for moments :-

1. means
2. variance
3. skewness
4. kurtosis

0 = متساوية upper tail & lower tail

A normal distribution can be characterized by :

1. mean
2. variance

Normal distribution

- skewness = 0
- kurtosis = 3 (how fat the tails are)

excess kurtosis = kurtosis coefficient - 3

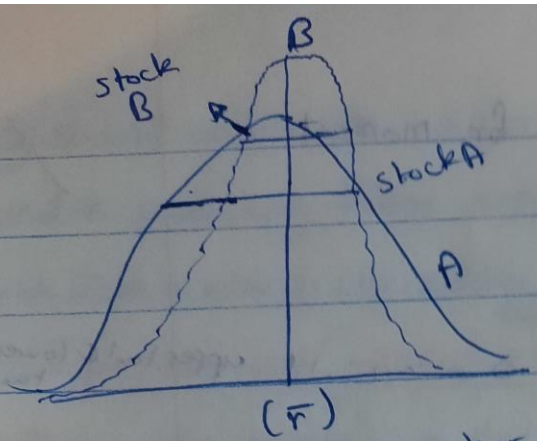
= 3 - 3 = 0

Variance → measure of risk (total)

$SD = \sqrt{\text{variance}}$

$$\text{variance} = \frac{\sum (r - \bar{r})^2}{n-1}$$

$$SD = \sqrt{\frac{\sum (r - \bar{r})^2}{n-1}}$$



A higher variance ⇒ higher risk

B should be chosen

monthly prices

Date	price	r
Jane, 2020	$20	~~7.5%~~
Feb, 2020	$21.5	7.5% ~~2.33%~~
March, 2020	$22	2.33%
April, 2020		

yyz adjusted closing price

monthly

April, 2022

$$\text{average monthy return} = \frac{\Sigma r}{n}$$

$$\text{annualized average return} = \left(1 + \text{average monthly return}\right)^{12} - 1$$

$SD = 6 = \sqrt{6^2}$

↳ annualized 6 = monthly SD $\sqrt{12}$

* If returns were not normally distribution then Semivariance is a better measure of risk.

Semivariance Considers downside risk

$$\text{Semivariance} = \frac{\sum (r - \bar{r})^2}{n}$$

$\bar{r}$: average of returns

returns that are below the average return

n : number of returns (obscrations) that are below the average return

* نبوخذ العوائد اللي اقل من المتوسط

r	$r - \bar{r}$	$(r - \bar{r})^2$
2%	-4.2	17.64
3%	-3.2	10.24
4%	-2.2	4.84
10%		
12%		

$\bar{r} = 6.2\%$

32.72

$$\text{Semivariance} = \frac{32.72}{3} = \boxed{10.9\%}$$

كل ما زاد عدد Returns اللي اقل من المتوسط في Semivariance بتزيد.

Rewarded and unrewarded risk:

Risk = divesifiable risk + nondiversifiable risk

firm specific risk — market Risk

* Firm specific risks:

(a) project risk : an indivisual project may have higher or lower Cash flows than expected because of mis estimation → This risk Can be diversified away if the firm invests in a number of projects.

قد يكون لمشروع فردي تدفقات نقدية اعلى او اقل من المتوقع بسبب سوء التقدير ← يمكن تنويع هذه المخاطر اذا استثمرت الشركة في عدة مشاريع.

(b) Competitive risk: where by earnings and Cashflows on a project are affected positively or negatively by the Competitors actions → This risk Can be diversifiable away if the firm buys its Competitor or if the stockholder of the firm hold stocks in the Competitors firms.

حيث تتأثر الارباح والتدفقات النقدية في المشروع ايجابا او سلبا بإجراءات المنافسين ← يمكن تنويع هذه المخاطر بعيدا اذا اقامت الشركة باستحواذ منافسيها او يمكن تنويعها اذا كان المساهمون في الشركة يمتلكون اسهما في المنافسين

تشمل المخاطر القانونية والتكنولوجية والسلع ، يمكن تنويع هذه المخاطر بعيداً
اذا قنوعت الشركة عبر الصناعات او اذا كان المساهمون يمتلكون اسهماً من
شركات مختلفة

ⓒ Industry spesific risk : includes tochnological , legal risk and commodity risk.

This risk can be diversified away if the firm diversfies across industries or if the stockholders hold stocks in differant industry

ⓓ International risk → Currency exchange rate risk
مخاطر اسعار صرف العملات .

→ Political risk.
مخاطر سياسية

يمكن للمستثمرين تقليل من
اخطار السياسة من خلال

- Investors can reduce political risk by investing across countries
الاستثمار عبر البلدان
(political risk is sometimes correlated accross countries and can not be diversified away)

- Currency exchange rate risk can be reduced if borrowings used to find projects were in the total currency .

يمكن للشركات تقليل تعرضها لخطر اسعار صرف العملات عن طريق الاقتراض بالعملة
المحلية لتمويل المشاريع .

* Market risk :

Changes in macroeconomic variables that affect the companise such as :

① interest rate ② inflation rate ③ economic growth .....

Market can not be diseNsified away.

Identifying the marginal investors:

Begin by breaking down the percent of firms stock hold by individuals, insitiutions and insider.

Percent of stock hold by insitiution	Percent of stock hold by insiders	Marginal investor
- high	low	insitituional investor.
- high	high	insitituional investor with insider influence
- low	high (hold by the ~~founder~~ /managers)	tough to tell, could be insider but only if they trade
- low	High (held by wealthy individual investor)	wealthy individual investors, fairly diversified
- low	low	Small individual investor with restricted diversification.

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problem 28 UniCom

year	price	Div	r
1989	$36.1	$3	–
1990	$33.6	3	1.38%
1991	$37.8	3	21.4%
1992	$30.9	2.3	-12.1%
1993	$26.8	1.6	-8%
1994	$24.8	1.6	-1.4%
1995	$31.6	1.6	33.8%
1996	$28.5	1.6	-4.7%
1997	$24.25	1.6	-9.2%
1998	$35.6	1.6	53.4%

a. $\bar{r}$ = ?

$$r = \frac{P_t - P_{t-1} + Div}{P_{t-1}} \qquad r_{1990} = \frac{33.6 - 36.1 + 3}{36.1} = 1.38\%$$

$$r_{1991} = \frac{37.8 - 33.6 + 3}{33.6} = 21.4\%$$

$$r_{1992} = \frac{30.9 - 37.8 + 2.3}{37.8} = -12.1\%$$

$$r_{1993} = \frac{26.8 - 30.9 + 1.6}{30.9} = -8\%$$

$$r_{1994} = \frac{24.8 - 26.8 + 1.6}{26.8} = -1.4\%$$

$$r_{1995} = \frac{31.6 - 24.8 + 1.6}{24.8} = 33.8\%$$

$$r_{1996} = \frac{28.5 - 31.6 + 1.6}{31.6} = -4.7\%$$

$$r_{1997} = \frac{24.25 - 28.5 + 1.6}{28.5} = -9.2\%$$

$$r_{1998} = \frac{35.6 - 24.25 + 1.6}{24.25} = 53.4\%$$

$$F = \frac{1.38 + 21.4 - 12.1 - 8 - 1.4 + 33.8 - 4.7 - 9.2 + 53.4}{9}$$

$$= 8.28\%$$

$\Rightarrow$

$(r-\bar{r})$	$(r-\bar{r})^2$
-6.9	47.61
13.12	172.13
-20.38	415.34
-16.28	265.03
-9.68	93.7
25.52	651.27
-12.98	168.48
-17.48	305.55
45.12	2035.8

$\sigma^2 = \frac{\sum (r-\bar{r})^2}{n-1}$

$= \frac{4154.91}{8} = 519.36$

$\sigma = 22.78\%$

Semivariance.

r	$(r-\bar{r})$	$(r-\bar{r})^2$
1.38%	-6.9	47.61
-12.1%	-20.38	415.34
-8%	-16.28	265.03
-1.4%	-9.68	93.7
-4.7%	-12.98	168.48
-9.2%	-17.48	305.55

Semivariance $= \frac{1295.71}{6} = 215.95$